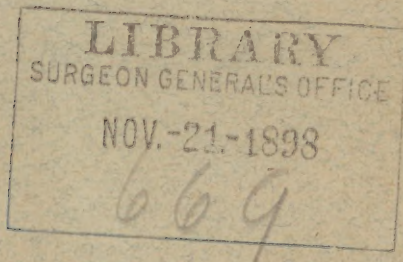


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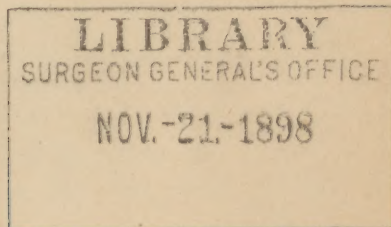


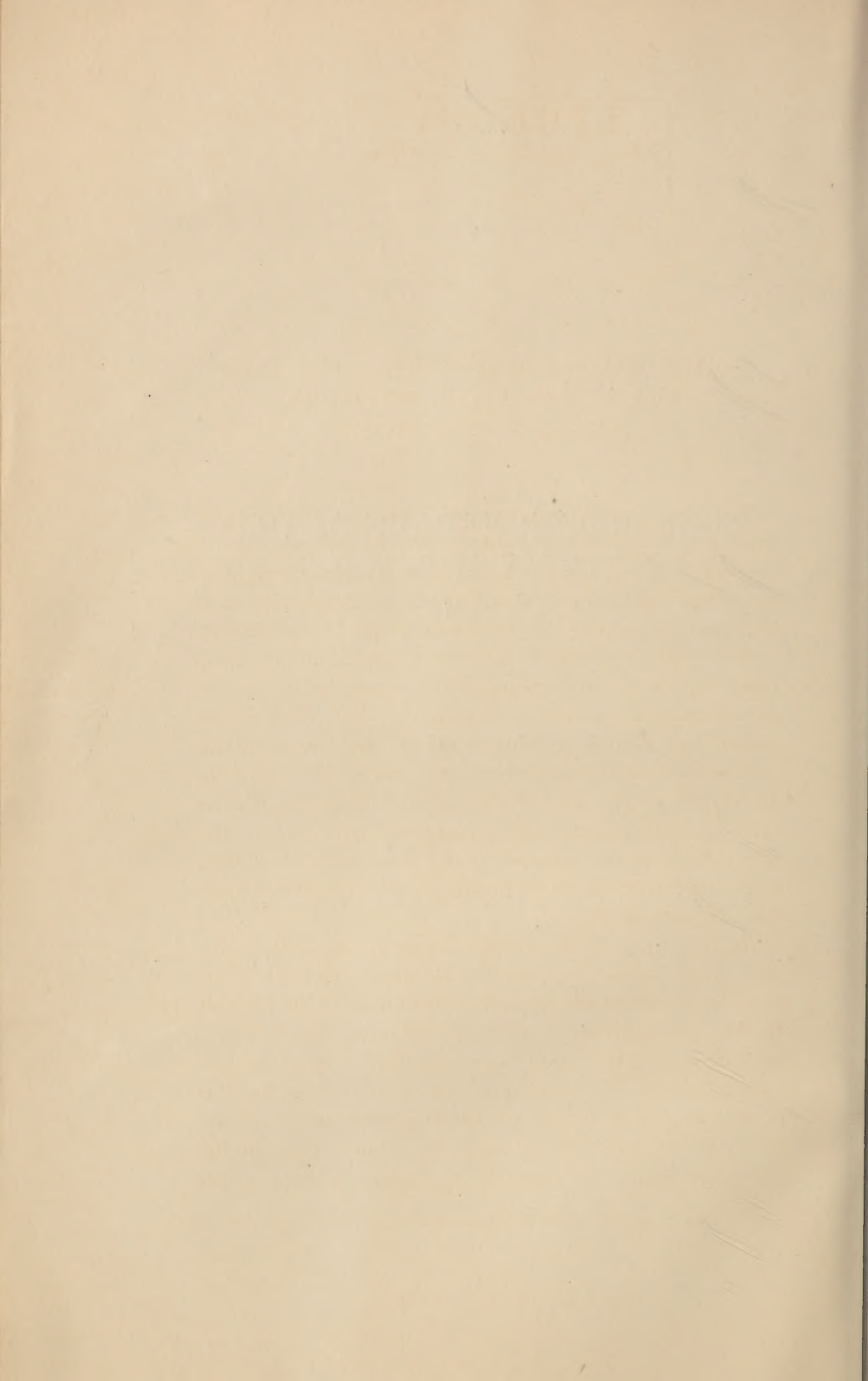
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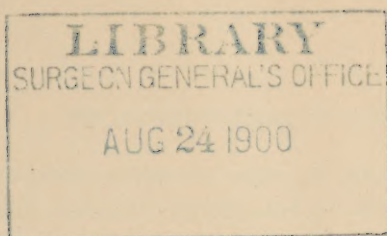
SOME MODERN METHODS OF THE
TREATMENT OF PHTHISIS,
AND ITS SYMPTOMS.

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Read at the Annual Meeting of the Massachusetts Medical Society,
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SOME MODERN METHODS OF THE TREATMENT OF PHTHISIS, AND ITS SYMPTOMS.

THE awakening interest in the treatment of phthisis so evident at the present time throughout the medical world is inspired, I think, by two facts; first the establishment of the unity of the disease through the discovery of the tubercle bacillus, and secondly a deeper realization of its curability.

Both pathological and clinical evidence afford abundant proof that pulmonary tuberculosis is susceptible of cure by nature either assisted or unassisted by art. This fundamental fact, clearly and fully realized, has stimulated the profession to study anew the causes and conditions of the disease, the means of its prevention, and its treatment when existing. Of its causes and prevention I have spoken elsewhere.* It is my purpose in this paper to outline some of the modern methods of treatment, which at present produce the best results.

As the two factors, the infecting germ and a favorable soil, must co-exist to produce the disease, so the treatment has consisted either in attempts to destroy the tubercle bacillus or imprison it; or in transforming the favorable into an unfavorable soil; or a combination of these two lines of attack. All attempts made to destroy the bacillus in situ have thus far, as we know, proved futile. What serum therapeutics may accomplish in this disease in the future we cannot say, but the anti-toxins have produced

* The Pray prize essay of the New Hampshire Medical Society for 1897.

such brilliant results in other infectious diseases that we may be hopeful that eventually the tubercle bacillus may meet its fatal foe from some such source. Meanwhile, we have the other line of attack left us, viz. : to develop and strengthen the resisting power of the consumptive until his pulmonary tissue presents no longer a favorable soil for the infecting germ. This is the plan universally adopted by the leading phthisio-theraputists both here and abroad, and it has produced the best results yet attainable. It is all included in "rest, extraordinary feeding, and a life in the open air; mental and bodily rest,* overfeeding of a fearless and heroic description, and perpetual fresh air."

The bare statement of this method makes it seem simple enough, but the detail of its accomplishment, however, demands strenuous exertion, a determined will, and great patience both on the part of the patient and the physician. An exact and rigorously adhered to plan of life is required, and nothing must be left to chances or the caprice of the patient. I believe it is always best to tell him plainly his condition, and the treatment demanded, and thus obtain his coöperation in our efforts. He must realize that whatever in his former habits interferes with the new plan must be abandoned. He is like a settler in a new country; a new life and environment is before him requiring changed life habits, and he is to realize that not what enters into his body medicinally is to have much effect upon his disease, but what goes in as food and air is mainly to decide the issue.

The best results from this hygienic-dietetic treatment are undoubtedly obtained in closed institutions or sanatoria, in whatever climate they are situated, because in such institutions the management of the patient's life can be more exactly and continuously affected when constantly under the eye of the physician; and further, he has the advantage

* Treatment of Consumption: Harris & Beale. 1895. pp. 376-79.

of the equipment there existing for the special treatment of this disease. Much, however, can be accomplished outside of a sanatorium even at the home of the patient, and when he is compelled to follow some occupation. The main elements entering into the hygienic dietetic-method are :

- I. Out-door life in a pure air, free from dust and smoke.
- II. Abundant alimentation, consisting of properly selected and prepared food, rich in fats and carbo-hydrates.
- III. Rest or exercise, or both according to the individual condition.
- IV. Hydrotherapy. And supplementary to these :
 - a. Such general medication as from time to time seems to be useful in coöperating with the above measures.
 - b. Symptomatic medication, to relieve any symptom which interferes with the general plan, and which cannot otherwise be removed.

(It is well to repeat that all medication is simply subsidiary to the open-air and food treatment, and occupies the place of least importance.)

The open-air treatment is such a radical departure from the former notions regarding the management of the disease that it is difficult at first to convince the patient and his friends of its importance, and the thoroughness of its execution, as well as to disabuse him of his fears of such constant exposure to the weather. Not an hour or two a day out of doors on pleasant days is meant, but whole days, and day after day are to be spent in the open air, in cloud or sunshine, warm or cold, stormy weather alone excepted; and at night the windows should always be open in the sleeping room. This cannot all be accomplished at once, especially with those who have been accustomed to an indoor life, as have most consumptives. They must be gradually hardened and trained to it; an hour or two a day at first, and on pleasant days. Gradually these out-of-door exposures can be increased and less regard paid to the

weather and variations of temperature, until there will be but few days unavailable for the treatment.

The question naturally arises as to the climate in which this plan can be pursued. Are not especial climatic conditions necessary? and are we not obliged to send our patients away to find them? Of course some climates are admittedly more favorable than others; as, for instance, those of the high altitudes, which possess especially desirable characteristics; but, as Dettweiler says, "in the treatment of phthisis there does not exist either specific means or specific climate. Phthisis is curable everywhere, in every climate." Wherever one can obtain pure air free from dust and smoke, protection from sharp winds, and a fair number of sunny days, there the free-air treatment can be carried out, and outside of the cities and manufacturing towns one can almost anywhere in our State find these conditions. "Even in the midst of large towns," as Weber says, "the air in open spaces and even in the streets is very much purer than within the houses." Moreover, such a dust free atmosphere utilized in a methodic and continuous manner will produce results, I believe, comparing favorably with those in the well known so-called health resorts. The climate of Falkenstein, for instance, possesses no very great advantage over that in many portions of New England; it is variable, has frequent rains, and the proportion of sunshiny days throughout the year is not extraordinary; and yet the results obtained compare favorably with those of other sanatoria more advantageously situated climatically. The secret is in making the most of such climatic conditions as are available, and thoroughly realizing the inestimable value of pure air in the treatment of phthisis. "If indeed pure air," says Dr. Henry MacCormac, "were a thing of price, of fictitious price I mean, for otherwise it is priceless; if people had to dive for it into the sea depths, or grovel for it in the mine, then would they value and

appreciate it." The effect of the open-air treatment is striking; there is a gradual reduction of fever, a gain in appetite and weight, sleep is improved, and night sweats diminished; cough, which may be temporarily increased, is in the end lessened, and there is a sense of comparative well being, and improvement of spirits. I am well aware that in private practice it is far more difficult to establish and maintain this open-air treatment than in the sanatoria arranged for the purpose, but with a little ingenuity and persistence it can be approximately accomplished, I believe, in most cases.

As the life in the open air must be principally one of rest, some spot must be selected, preferably facing the south, where the patient can recline upon a deck or reclining chair, and be protected from the wind and rain,—for a moderate rain does not contra-indicate the treatment. A veranda with movable curtains at the sides; a small light wooden hut or shed, that can be easily transferred from one place to another, and turned around according to the direction of the sun or wind; a tent with a raised wooden floor, and curtains capable of being open or shut; an awning on a house-top; a hammock under the trees, are some of the contrivances by which this may be accomplished. The environment of each individual case will suggest others. The recumbent position is preferable for several reasons: the feet and legs can be better protected with wraps, and even hot water bottles in cold weather; the circulation of the blood in the lower extremities takes place more easily, and, according to Voland, the blood supply to the apices of the lungs is increased, thus favorably influencing the nutrition of the diseased parts. As one becomes habituated to this open air exposure, he will pay less regard to variations of temperature and but few weather conditions will prevent it. In the continental sanatoria it is carried out in summer and winter, in rain and snow; high winds being almost the sole

weather contra-indication. The question might be asked why is not a large well ventilated room with an open window as good? A moment's reflection, I think, will satisfy one that a patient cannot be so continuously bathed in fresh air indoors as out, even in the best ventilated room—the one is aeration, the other hyper-aeration. Then again the out door air is purer than it can be in any living room.

I have said that the life of the consumptive out of doors must be principally one of rest, and this is especially true at the beginning of the treatment. The general system is in a depressed condition, the circulation poor, and the heart inadequate for its work. Rest, mental and physical, and abundant and nutritious food, with as little expenditure of vital force as possible, are the measures indicated, and will best aid in forming fat and blood. Much exercise is a mistake, I believe. The experience of the Dettweiler system of uninterrupted rest, continued for months, has abundantly vindicated its value.

With febrile cases rest should be the invariable rule admitting of few exceptions; for experience has proved that rest either in the open air or in a well-ventilated room with open windows is the quickest and most certain way of subduing this symptom. At the sanatorium of Hohenhonnef the fever patients are not even allowed to lie out in the reclining chairs for fear the moving might aggravate the fever. This matter of absolute rest for febrile cases of phthisis I have seen so often disregarded that I desire especially to emphasize it. When the fever is intermittent, and the morning temperature is normal, a limited amount of exercise may be advisable, but such cases should be under careful observation. Afebrile cases can, as a rule, take a certain amount of exercise, depending largely upon the condition of the heart. This should not be so severe or prolonged, however, as to exhaust the patient or produce dyspnœa or excessive perspiration. The kind of exercise

will depend somewhat upon the environment and available conditions, but walking either on the level, or up gentle ascents—Brehmer's "hill climbing"—is the simplest and most free from injurious effects, and can, moreover, be easily regulated. The physician should determine the amount and not leave it to the judgment or caprice of the patient.

Whatever form of exercise is adopted, deep breathing or lung expanding movements should constitute a part of it. The "breathing tube" is serviceable for this purpose, permitting a free full inspiration, and an impeded, gradual expiration; or one may simply stand erect with the hands on the hips and take slow, deep respirations. The chest expansion may also be assisted by arm movements in either the erect or recumbent position. As with all else connected with the hygienic-dietetic treatment, these breathing exercises should be taken regularly, so often, and so many times. Of course, if the discretion of the patient can be relied upon, various other forms of gentle exercise, depending upon his condition, may be useful as combining with the exercise pleasurable diversion, or in the form of some light occupation, such as gardening, driving, or other work upon the land. It must be borne in mind, however, that all this applies to afebrile cases.

If the impossibilities of establishing an out-door life at or near the home of the patient, appear insuperable, which I believe will not be so often the case as one might at first think, then a change of residence is demanded which will render this attainable. Wherever the patient goes he must be under careful and constant medical supervision and be thoroughly imbued with the significance of the open-air treatment; however admirable the climate, it must be utilized to the fullest extent in order to realize its beneficent influences. Continuous out-door life is the only one for the consumptive, for him it *is* life. This is not the

place to consider the different climates applicable to phthisis. I will only say that experience so far has proved that the medium or high altitudes have produced the best results, largely I am inclined to think because they afford the purest air; but it is well to repeat again here Dettweiler's words: that consumption can be cured in any climate.

FOOD.

Of equal importance with the air treatment is the feeding of the patient. "Air and food both of the best quality possible are the most potent factors in treatment." An abundance of nutritious, easy assimilable food, containing a due proportion of proteids and carbo-hydrates, and rich in fats, is required. Brehmer attached great importance also to all kinds of vegetables. Much attention must be given to the quality and preparation, as well as to the method and time at which the food is to be taken. There should be frequent variety, adapted to individual taste and condition, and the service should be such as to render it appetizing and attractive. Experience has shown that the amount of food required can be best taken by frequent small meals, generally five a day, arranged somewhat as follows: At seven or earlier, a glass of warm milk in bed or while dressing, with a spoonful or two of brandy or limewater if indicated. At 7.30 to 8, breakfast, consisting of tea, coffee or cocoa, bread and butter, bacon, fish, poultry or meat. At 10 or 11, a glass of milk or a cup of broth or beef-tea, or a sandwich and a glass of wine. At 1 or half past, dinner, consisting of soup, meat or poultry, or fish or game, with fresh vegetables and a light pudding or fruit. Also alcohol in some form may be allowed at this meal, if the physician considers it desirable. At 4 o'clock, a glass of milk or a cup of tea or coffee with much milk, or bread and butter or rolls. At 7, supper, with one or two courses, and vegetables, similar to the meal in the middle of the

day. At 9 or 10 on going to bed, a glass of milk, or bread and milk, or milk with some farinaceous food like oatmeal porridge. If milk alone is taken at this meal two or three teaspoonfuls of brandy may be put in it. In pyrexia the nourishment must contain less solid food and be taken more frequently. It is not enough to dismiss the matter of diet by telling the patient to eat all he can of good food; in that case we may find he is taking but very little nourishment, his appetite may be lacking, the digestion impaired, so that at the time when he most needs to be fed we shall find he is taking the least food. We may aid the appetite and digestion by some temporary simple medication, although generally the out-door life will prove the best tonic. By persuasion we can induce him to take a little, and this will increase the desire for more. Sometimes we must insist that a stated amount of food must be taken. The fancies of the patient can sometimes be followed to advantage. Good cooking and attractive service also aid materially. By ingenuity, constant attention and insistence, and frequent and small feedings, we can generally succeed in having our patients take a liberal amount of nourishment, a much larger quantity than at first seemed possible. It is well to bear in mind that the digestive powers of a consumptive are often greater than the appetite indicates. Periodic and frequent weighing of the patient will indicate the success or failure of the method of feeding adopted.

Milk, either as such or in the form of koumiss or kefir, or when it constitutes the principal ingredient in some of the various "foods", is a most valuable adjunct to other kinds of nourishment, and in certain conditions, such as gastro-intestinal disturbances, may form the entire diet. It can be made more digestible and agreeable by adding soda or some of the various alkaline mineral waters, such as seltzer or apollinaris, or a small amount of brandy; or a small quantity of coffee, tea or cocoa will render it more palata-

ble in some cases, while in others it is best borne peptonized. Care should be taken that it is obtained from tested cows, or if not it should be boiled. When used with other forms of nourishment four or five glasses a day will be enough. In the so-called "milk cure," when it is the exclusive article of diet, as much as ten to twelve glasses are taken in the twenty four hours. Its true office, however, I believe, is to supplement the regular diet.

Alcohol may be regarded either as a food or a drug, and practically it makes little difference how we look at it. Of its value in the majority of cases I am convinced, especially when fever exists. The method of administration and the daily dose must be determined by individual conditions. Regarding the form in which it should be used, it does not make so very much difference in my opinion. Dettweiler has a predilection for brandy diluted with water or milk. Whiskey can be used in the same way. Various wines, heavy or light, Hungarian, Port, Sherry, Tarragona, Rhine, Italian or California, can be used with the meals. Brehmer does not consider beer as adapted for consumptives. When the appetite is wanting, digestion enfeebled, the circulation poor, and pyrexia exists, alcohol in fairly large quantities is indicated, if it can be taken without discomfort, and will alleviate in a marked degree these symptoms. With patients, however, who rapidly increase in weight and blood tension, alcohol increases the liability to hæmoptysis and is also dangerous for those who show a disposition to hæmorrhage.

Cod liver oil, which is sometimes classed with foods, sometimes with drugs, is, by a vast experience in its use, acknowledged to be the most valuable single nutritive agent in all the consumptive's dietary. "I have no hesitation," says Dr. C. J. B. Williams, "in stating my conviction, that this agent has done more for consumption than all other means put together." Of all the fats it is the most

easily digested and assimilated, and can be tolerated by the majority of patients, and for long periods of time, if one begins its use cautiously, one or two teaspoonfuls a day. Wherein its peculiar efficacy resides, whether in the oil itself or something contained in it, is still undetermined. It seems reasonable, however, to suppose that the inorganic substances and biliary salts which it contains, are largely influential in its easy digestibility and absorption, and hence rendering it more nutritive than any other fat food. At all events it is surely a fact that a patient will gain weight from cod liver oil when he can do it in no other way. Darenburg and others consider the darker colored oils more efficacious than the pale; the latter, however, are generally prescribed. The majority of consumptives can take cod liver oil with benefit. There are, however, some contra-indications, gastric or intestinal catarrh, diarrhœa, and fever if high or continuous. When there is only a slight rise in temperature in the evening, a moderate dose can generally be taken. It is most valuable in the quiescent periods, and the least so or even sometimes harmful, in the active, when the degenerative changes are rapid. I always give it, if possible, alone, either directly after meals, or in two or three hours. It can be floated upon milk, coffee, whiskey, brandy, ale, porter, or lemon juice. I have recourse to the emulsions only as a last resort.

The various malt extracts, so extensively used now, have a certain limited value, if not exactly as food, as an aid to digestion, and as a very useful vehicle for cod liver oil. Of course they bear no comparison in value to the latter.

Hydrotherapeutics, which occupies an important place in the hygienic treatment of phthisis in foreign sanatoria, does not seem to have been generally appreciated in this country, at least in private practice. By the hydropathic treatment the body is hardened, thereby giving it greater protection against cold; the circulation is accelerated and strength-

ened; the appetite stimulated; and tissue metamorphosis promoted. It is used symptomatically in pyrexia, night sweats and various nervous phenomena. It consists of warm baths, ablutions, cold friction or sponging, the wet pack, and douches. Cold sponging is the simplest method, and if a chill is feared or the extremities are cold, the patient can stand in warm water and hold with both hands a hot pack to the pit of the stomach. (Ransome.) For cold friction the patient stands near the bed, stripped, and is wrapped in a sheet wrung out in cold water; the whole body is then rubbed firmly and rapidly; the sheet is then removed and a dry one folded about him, and he is rubbed again, and then dresses quickly. The cold friction may be partial and applied while the patient is in bed.

The wet pack is applied while the patient is lying upon a bed covered with a blanket. A coarse linen sheet is wrung out in water of a temperature of from 70° to 50° F., and tucked about him and this covered with a blanket. In this he remains from one-half to an hour, and it is well to have a window open while he is in the pack. Instead of the full pack certain portions of the body only may be included, as the trunk, the upper half, or the limbs. The end to be attained by the wet pack is to stimulate the skin activity and thereby relieve the congested thoracic organs.

Chest compresses consist in the application of napkins wrung out in cold water and covered by flannel. The Winternitz cross band is extensively used upon the continent in phthisis, and is said to relieve and lessen the cough, favor expectoration, and improve the respiration. It is applied by winding about the chest from one axilla to the opposite shoulder and reverse, a linen cloth or sheet wrung out in cold water, until the whole chest, front and back, is covered, and then applying in like manner a dry flannel cloth. The cold douche, only applicable to mild cases with fairly good reactive power, consists of a rain or cascade

douche from above, or a hose with a jet or sprinkler from the side. This is generally used in the morning under the immediate supervision of the physician, beginning with five seconds and gradually increasing to not more than forty. The patient is then rubbed dry with a rough sheet.

Ablutions can be applied to all patients, and consist in bathing the body especially the chest, front and back, with a sponge wet in water at the temperature of the room, and then rapidly drying it with a rough towel or horse-hair glove. In the case of night sweats, diluted spirit or vinegar may be substituted for pure water. Ablutions are given in bed and generally in the morning. When the patient is feeble or neurasthenia exists, massage is useful.

In the hygienic treatment the clothing demands consideration especially while the hardening process of out-door life is being established. The tendency, not to say danger, is in wearing too much and too heavy clothing, especially about the chest. The capillaries of the skin are relaxed, excessive perspiration induced, thereby rendering the body surface more sensitive to changes of temperature. The under garments should be loose enough to allow a layer of air beneath them. "Inside our dress," says Pettinkoffer, "we should carry the air of the South wherever we may be * * * We live in our dress like an unclothed tribe in a Paradisian country, where the air is constantly calm and the temperature from 75° to 94° F." Experience has proved that the innermost garment should be of wool of a weight adapted to the season, of light open texture, and loosely fitting. (Ransome.) Chest protectors belie their name and are a source of danger by rendering the skin of the chest more sensitive. "The best chest protector," says Ransome, "consists in well douching the chest night and morning with quite cold salt water."

Under general medication I shall speak only of Creosote, the Alkaline Hypophosphites, Strychnia, Arsenic, and Iodoform.

Creosote, known in the days of Louis, and of late years popularized by Sommerbrodt, is perhaps as extensively used at the present time as cod liver oil. No drug could have retained its hold so long without possessing intrinsic value. Opinions differ as to its action; the extremists hold that it has a specific effect upon the disease and its bacillus; the conservatives, on the other hand, believe its value consists simply in improving nutrition and thereby increasing the resisting power of the individual. "It has the power," says Whittiker, "of destroying the lower organisms, especially those of fermentation, hence the undeniable virtue of creosote is chiefly nutritional." All who have used it to any extent in phthisis can bear witness to the fact, that the cough and expectoration are lessened, the weight increased, and the appetite, digestion, and general condition improved. It is contra-indicated in gastric or intestinal catarrh, fever and hæmoptysis, and where it appears to injure rather than to improve digestion. The dose varies with different practitioners, and whether they hold one or the other theory regarding its action. Those who believe in some specific action give large doses, sometimes as much as a drachm three times a day. I begin with one or two minims and gradually increase to ten, not as a rule going beyond that. I use the plain beachwood creosote giving it in milk, cod liver oil, malt or wine, or with Gentian or other aromatics, and continue its use for months. Guaiacol, a derivative of creosote, has essentially the same action as the latter; it has nothing to recommend it above creosote except its less objectionable taste, and its being somewhat less irritating to the gastric mucous membrane. Carbonate of creosote (creosotal) has lately come into extensive use and is said to be the most eligible preparation of the drug, being free from its nauseous odor and burning taste and less likely to cause gastro-intestinal disturbance. Seifert* gives

* *Lancet*, April 2, 1898.

the following method of using it in Leyden's wards in Berlin. Beginning with a dose of 5 drops, and increasing 3 drops daily, a maximum of 25 is reached and continued from one to four weeks, or even longer. The dose is then diminished in a similar ratio to 10 drops and then eventually the ascending scale is begun again. Used in this way it is said to be cheaper than creosote. Whichever one of these creosote preparations is used, it should not be used blindly, and when digestive disturbances are excited, or no symptomatic or general improvement is apparent, it should be discontinued.

The alkaline hypophosphites in this country and England at least, are very extensively employed in phthisis, particularly in its earlier stages and with the young. There is no evidence that they exercise any specific influence upon the disease, but their chief effect seems to be in improving appetite and nutrition and allaying nervous excitability. They also influence favorably night sweats. Darenberg* says that there is a great loss of phosphates from the bodies of phthisical persons in the sputum and urine, and further, that the calcareous masses found in the lungs are chiefly phosphates and carbonates of lime and magnesia: hence he thinks that the hypophosphites are of value in aiding the formation of fibrous tissue which contains much phosphates and carbonates, and in producing calcification of tubercle by furnishing to the organism one of its constituent elements. Hodgkinson† is also of this opinion, especially when the disease is local and quiescent, and thinks the efficacy of the hypophosphites is enhanced by using them in conjunction with cod liver oil. Whether anything of this kind actually happens seems to me doubtful; probably the chief, if not the only value of the hypophosphites is in promoting nutrition. In pyrexia they are contraindicated.

* Ransome. *The Treatment of Phthisis*. 1896. p. 153.

† Ransome. *loc. cit.*

Strychnia I have used extensively, and it has seemed to me to be of more than ordinary value, not only as a tonic to the digestive system, but for its general effect upon the heart and respiration. Mays * considers this drug next in importance to physical rest and nutritious food and gives it in heroic doses, from $\frac{1}{32}$ to $\frac{1}{4}$ of a grain at a dose; he refers to one patient who took $\frac{1}{8}$ of a grain four times a day uninterruptedly for two months. Dr. C. J. B. Williams, † late of Brompton Hospital, says that strychnia may be regarded as a specific against the retching of phthisis, and he gives it in doses of from $\frac{1}{32}$ to $\frac{1}{24}$ of a grain. By the use of this drug, he says, patients have been able to persevere with cod liver oil for months and even for years without digestive derangements.

Arsenic only has value in this disease as a useful tonic in aiding nutrition and stimulating assimilation. There is no evidence for regarding it as some observers have done, as an anti-bacillary medicine. The French physicians are unanimous in ascribing to it exalted value. "It would be difficult," says Jaccoud, ‡ "to find an agent more capable of resisting the consumptive tendency which exists in every form of the disease." Its value, Jaccoud says, depends upon its power of combatting malnutrition always existent in the disease. C. J. B. Williams considers arsenic the most useful tonic next to strychnia, checking slight pyrexia and night sweats and improving the respiratory powers. It is best administered after food.

There is but one other drug I shall refer to under the head of general medication, the extensive use of which would seem to warrant its mention; it is iodoform, either used as such, or in the form of its substitute eucrophen. So far as evidence has accumulated regarding it, its chief

* The Strichnine Treatment of Pulmonary Consumption. 1894. Reprint.

† Pulmonary Consumption. Williams. 1887. p. 391.

‡ Curability and Treatment of Pulmonary Phthisis. p. 144.

effects appear to be an improvement of the appetite, increase in weight, and a diminution of the cough. Ransome, who is careful in his statements, says he believes it is one of the best of the medicines that can be given for the purpose of assisting nutrition and alleviating cough. Flick applies eucrophen by inunctions, using the following formula :

R	Eucrophen	3 i.
	Oil of Rose	gtt. i.
	“ “ Anise	3 i.
	Olive Oil	3 iiss.

M.

Rub about a tablespoonful thoroughly into the inside of the thighs and into the armpits before retiring at night. If the odor is objectionable the patient can be sponged with bay rum in the morning.

When one considers the limitations of the few remedies above enumerated, the best of the thousands which, at one time or another, have been suggested and used in the treatment of phthisis, he must attest the truth of Laennec's conclusion "that although the cure of tuberculous phthisis is possible for nature, it is not so for medicine."

I have purposely refrained from referring to the therapeutic use of tuberculin and its derivatives, both because the subject has recently been presented to this Society,* and also because in this paper I desire to present such methods as are more easily and universally applicable and have been longer tested. Although I am hopeful as to the future possibilities of tuberculin, I do not believe its uses and limitations have been as yet sufficiently determined to warrant dogmatic statements. In passing I will say that my experience with tuberculin for diagnostic purposes has satisfied me that it is a most valuable test, and, when used in proper doses, without injury to the patient.

* Vide Dr. Worcester's paper before this Society, 1896.

Under symptomatic medication I shall refer to the fever, sweating, cough, hæmoptysis, digestive disturbances, and vomiting.

Fever may exist at any stage of the disease, either when the infection, so far as we can tell, is a pure tubercular one, or when the mixed infection has taken place and the fever is that of sepsis. It has been maintained that a pure tubercular infection is afebrile, but the evidence does not seem to corroborate this view, for we have fever when neither the streptococcus, staphylococcus or other micro-organisms other than the tubercle bacillus are found. This symptom is of extreme importance both as regards the prognosis and treatment, for so long as fever exists we know that the disease is active and improvement as a rule cannot take place. In this disease as in most others accompanied with fever, one must bear in mind that fever is one of the results of the general disease and not a disease itself, and consequently our efforts must be directed to the disease and not primarily to the fever. In the majority of cases the fever which we meet with is of the septic or hectic kind of a remittent or intermittent type, reaching its highest point in the latter part of the day and its remission or intermission in the morning, although this curve may be reversed. It is generally accompanied at one time or another in its course by night sweats and chills. The effect is the same as in other septic fevers, a loss of weight and strength, impairment or loss of appetite and various nervous phenomena.

The treatment, as I have said, is one directed to the general condition, hygienic, rather than medicinal. Rest of body and mind in a pure, dust-free air, and good and easily digested nourishment. By this means, Schröder, of Hohenhonnef, says he has succeeded in reducing the temperature to normal in a large number of cases, and in putting the patients into the category of those who endure their tubercular infection without rise of temperature. Rest

should be the absolute rule for fever patients, as I have already observed. Of course there are individual exceptions, for individualization must always be made in this disease. Where a long confinement is evidently doing more harm than the fever, the appetite and digestion are failing, and the courage waning, it may be the least of two evils to allow the patient to move about a little, especially when for a certain portion of the day the temperature is nearly normal.

The food in phthisical fever should be abundant and rich in fat and carbo-hydrates. It should be carefully and delicately prepared, and given in small quantities and frequently. If the appetite and digestion fail a liquid diet may have to be resorted to, composed largely of milk, either plain or in the form of koumiss, kefir or peptonized. As I have said above alcohol is indicated, a glass of strong wine or a teaspoonful of brandy in milk several times a day, especially when a chill is apprehended. Sponging with cool water or mixed with alcohol or vinegar night and morning; cold water compresses applied to the chest; an ice bag over the cardiac region if the heart is rapid, are some of the hydropathic measures of service. Antipyretics are only to be resorted to, in my opinion, when the other means fail and the fever causes annoying symptoms such as disturbance of sleep and the like. At the best they only exercise a very transitory influence, with more or less resulting depression. When used the choice may be either antifebrin, phenacetine, antipyrin or lactophenin. If the heart is weak, caffeine or strychnia can accompany them. "Nothing in my practice," says Ransome, "has done so much to relieve the patients (of fever) as fresh air, and sponging with cold vinegar and water. Fresh air night and day before everything else."

A symptom intimately connected with, and so frequently dependent upon fever, is *night sweats*. We may, however, have excessive night sweats when the fever is very slight,

as in the early stages of the disease, or later on when it is of a mild type. In either case the ultimate cause is some disturbance of the central nervous system, probably toxæmic, acting either through the sweat centres or those of the vaso-motor system. When the sweating is an incident of the fever the treatment of the latter is the treatment of the former, and when one subsides the other will. When, however, the sweating is out of proportion to the fever, or it becomes an annoying and depressing symptom, especial treatment is indicated. Here again hygienic-dietetic measures are of most value. A good meal in the evening, and a glass of milk with two or three teaspoonfuls of brandy the last thing at night, repeated, if necessary, during the night, or if not this, some simple food; dry or moist rubbing with acidulated water at night, and compresses to the chest, all the while the patient being allowed an abundance of fresh air. If these means fail, drugs are the last resort. Strychnia is indirectly valuable as a tonic to the depressed nervous system. Of the specific anti-hydrotics, we have several, and I know of no means, except by trial, of determining which will succeed in any case. One after another has to be tried until the successful one is found. The most generally successful I have found to be camphoric acid, 30 grs.; picrotoxin $\frac{1}{100}$ to $\frac{1}{50}$ gr.; agaricin $\frac{1}{12}$ gr.; and atropia $\frac{1}{60}$ gr.; the order indicating their value. Agaricin should be given six or eight hours before the usual time of the commencement of the sweating, camphoric acid an hour or two before, and atropia or picrotoxin at bed-time. The patient should be well covered in bed with woolen blankets and sleep with open windows.

Of all the symptoms of phthisis, *cough* is the most constant and evident one. "If I can only get rid of the cough; give me something for the cough," is the oft repeated and pathetic appeal of the poor consumptive. In the first place the patient must be made to understand that

cough to a certain extent is necessary, and is to be promoted and favored. Beyond this necessary and conservative amount, however, there is the unnecessary, which exhausts the strength, interferes with nutrition and disturbs sleep.

By our management of the cough, two things are to be accomplished; to reduce to a minimum the amount necessary for the expectoration, and to stop the irritable unnecessary coughing. In the cough of expectoration one can learn to accomplish the results with the least expenditure of strength. The tendency to cough can be restrained until the expulsion of the secretion is easy or almost comes of itself. Exercise in the open air is said to facilitate this, when exercise is allowable, as well as pulmonary gymnastics. In the spasmodic cough unaccompanied by much if any expectoration, besides the control which the patient by training can exercise, various simple means will further aid, such as counter-irritation, a sip of water or milk, warm milk with salt, seltzer or apollinaris water, pastiles of Iceland moss or gelatine, gum arabic, a wet compress over the chest. The degree to which cough can be controlled by the training is admirably illustrated in the German sanatoria, where one sees a hundred or more phthysical patients together at dinner and hardly hears more coughing than would occur in an assembly of an equal number of well people. The coughing which occurs directly after eating rest in the recumbent position will sometimes obviate. The common morning attack of coughing, one of expectoration, often so prolonged and severe, can frequently be modified in intensity and duration, by taking on awakening a glass of warm milk with a little soda or salt, or an alkaline drink, such as vichy, seltzer or soda, with a teaspoonful or two of brandy or rum in it.

Of medication, the one drug which I have found more serviceable than all others is codeia, and indeed I rarely use any other. I am accustomed to use it in the form of a

one per cent. solution. It does not disturb the appetite or digestion, or cause constipation as the other preparations of opium are likely to do; a couple of teaspoonfuls of this solution will generally give a good night's rest. "Again I would insist," says Ransome, "that fresh air and plenty of it is the best remedy for cough, especially when this is at all spasmodic in its character. Over and over again I have noticed the cough cease entirely as long as the patient was in the open air, and come on again on the return within doors."

Hæmoptysis occurs in about 50 per cent. of all cases of phthisis, and may happen and prove fatal at any stage of the disease. Jacobi speaks of having seen a fatal case in a patient who had never presented any symptoms, or been suspected of having any tubercular disease. Vascular tension and degeneration of the walls of the vessels are the two causative conditions, and it is evident that in treatment we can only expect to directly influence the former. There is a diversity of opinion as to how this can best be accomplished, and consequently a diversity of treatment. There are certain general rules, however, which are applicable to all cases. First, the patient must be maintained in a complete state of rest both mental and physical; this alone in many cases will suffice. Secondly, and as more thoroughly accomplishing the first, is the use of opium in some form, preferably morphia subcutaneously; by it the nervous excitement is controlled and the cough restrained. The general usage is to give the nourishment cold, as iced milk and the like. While not considering this necessary, it should be simple and unstimulating, and perhaps best in the liquid form. The value of external applications seems to me doubtful. The ice bag on the chest or over the cardiac region is the most common one, but its efficacy is questionable and it may do harm. Counter-irritation in the form of mild mustard plasters to the back and sides of the chest,

or dry cupping, seems more reasonable. Experience in the use of drugs varies greatly, probably because they have been used empirically rather than with a regard to the underlying pathological conditions.

In most cases of bronchial hæmorrhage what we desire to accomplish and all we can indeed accomplish is a lowered pulmonic vascular tension, and this we can affect by a general depression of the blood pressure as well as a reduction of the amount in the lungs. The means that serve for this purpose are—atropia, ipecac, saline laxatives, salt, and the application of constricting bandages to the extremities. In a case of moderate severity, where the pulse is of fair strength, I would outline the treatment as follows :

Complete rest, opium, salt dry on the tongue, a saline cathartic and aconite, or some other general vascular sedative according to the tension. If ipecac is used it should be given in sufficient amounts to maintain nausea. When the hæmorrhage is profuse, besides rest, opium and salt, ligature of the extremities and from $\frac{1}{10}$ to $\frac{1}{2}$ gr. of atropia subcutaneously are indicated. The atropia causes vaso-motor paresis, thereby diverting the blood to the periphery. When the obstruction in the lungs and the coagula in the upper air passages produce dyspnoea and cyanosis, threatening suffocation, attempts should be made to dislodge the clots from the larynx, and champagne, ammonia, or other stimulants are indicated. If the hæmorrhage appears to be passive from cardiac weakness, digitalis and alcohol may be used. In the sudden and excessive bleeding in the latter stages of the disease, from the rupture of an aneurismal sac, nothing avails, and I have had a patient die almost before the nurse could cross the ward. I am doubtful if the astringents are of any great value, although they are perhaps oftener used than any other class of remedies, especially ergot. Those which appear to be the best for this purpose, if any are used, are turpentine in 5 minim capsules every 4 to 6 hours; oil

of *erigeron* from 5 to 20 drops or more, and the fluid extract of *hydrastis canadensis*, from 20 to 30 drops.

Chronic Dyspepsia is a common and annoying condition in this disease, represented by a variety of symptoms; failure of appetite, vomiting, heartburn, a fulness after eating, and other unpleasant sensations dependent upon digestive disturbances. The most important part of the treatment is the regulation of the diet, together with the open air life. Milk, either as such or in the form of kefir or koumiss, is always available and useful. Frequent feedings of small amounts of easily digestible food are indicated, broths, bouillon, eggs, chicken, meat extracts, fish, sweetbreads, oysters, preferably raw, various kinds of farinaceous food. Sometimes an almost exclusive diet of beef is best borne. Perhaps the food can be better taken cold than warm.

If there is a tendency to diarrhœa, two or three teaspoonfuls of brandy in milk and lime water may be given, or if on the other hand constipation exists some alkaline mineral water can be used to dilute the milk. If the digestive ferments are deficient in quantity or quality, peptonized foods are of service, together with *nux vomica* or some of the bitter tinctures and hydrochloric acid. When a catarrhal state of the stomach is present, indicated by a red tongue, pain after food, flatulence and perhaps nausea and vomiting—so frequent a condition in the latter stages of the disease—a little opium with bismuth, perfect rest after eating, moist compresses over the gastric region, are some of the remedies. If creosote is being taken it should be omitted. If there is fermentation, some of the intestinal antiseptics, guaiacol, creosote, bismuth, charcoal and the like may obviate this symptom.

Vomiting is a symptom which demands our most careful attention, for it attacks nutrition at its source, and as Darenberg says, "the stomach is the stronghold of the consumptive, and alimentation the principal means of defence." It

occurs most frequently at the initial and terminal stages of the disease. It may be caused (*a*) by the cough directly, much as in whooping cough; (*b*) by reflex cough; (*c*) by abnormal gastric conditions, catarrhal and dyspeptic. When the cough is the direct cause, as when the patient arises from bed in the morning and has a paroxysm of coughing accompanied by retching and vomiting, the treatment of the cough is in a measure the treatment of the vomiting. But we cannot wholly prevent the cough, nor would it be wise to do so, for it is often one of expectoration. In a large number of these cases it has been found that pharyngeal hyperæsthesia* exists, and the irritation of this sensitive area in the throat either by the cough or expectoration excites a momentary reflex nausea terminating in vomiting. If then we suppress this hyperæsthesia we stop the vomiting, and this can be accomplished in the majority of cases by applying to the pharynx a solution of cocaine by spray or brush.

Food passing over the hyperæsthetic throat may also produce the same phenomena, viz.: cough and vomiting; and here the application of the cocaine should be made just before eating. Vomiting from reflex cough, occurring during or soon after taking a meal, is attributed either to the presence of food in the stomach through irritation of the gastric terminals of the pneumogastric, or to an increased secretion in the air passages caused by the stimulus of the circulation produced by the food, or, as Berthier thinks, from the same cause as the former kind, pharyngeal hyperæsthesia. At all events, the throat should always be examined in these cases and treated if the condition exists. If the first cause appears to be the dominant one, primarily very careful attention must be given to the feeding. The food must be taken in small quantities, sometimes limited to liquids, sometimes to solids, and slowly and thoroughly

* Berthier, *Renne de la Tuberculose*. 1898. p. 1.

masticated. Gastric sedatives are also indicated: a few drops of laudanum in water, codeia, bismuth with three or four drops of diluted hydrocyanic acid, tr. of iodine from 1 to 10 minims, chloroform water shortly before meals or strychnia an hour before, and after eating a few drops of hydrochloric acid in water. Oxalate of cerium, the bromides or creosote may also be tried, if other means fail. A glass of warm water at the beginning of the meal, or a little brandy or whiskey diluted with some mineral water during the early part of the meal may also be of service.

When the exciting cause seems to be the increased secretion in the air passages from the stimulus of the food, free expectoration is to be promoted and the air passages cleared before the taking of food. This may be accomplished by a warm stimulating drink half an hour before the meal, a cup of hot milk with some alkaline water and a teaspoonful or two of brandy or whiskey, or beef tea or broth with a teaspoonful of brandy. The meal is then to be a dry one and a little pepsin and hydrochloric acid taken after it. If, in spite of treatment, vomiting ensues it is advisable to try a little food immediately after. If the vomiting is caused by definite gastric symptoms, these should have their appropriate treatment, as indicated under the head of digestive disturbances. When the vomiting persists in spite of all treatment and a fatal issue seems imminent, or the patient is becoming rapidly emacipated and enfeebled, the last resource is opium freely used.

In the treatment of phthisis the physician must gird himself for a long, hard, persistent struggle and be prepared for many a reverse, but success comes frequently enough to inspire him with courage and hope. To have snatched a single life from the grasp of this relentless monster is a source of infinite satisfaction.

